



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,584	10/17/2003	Shunji Maeda	501.33745CX4	9360

20457 7590 03/24/2006

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER


PHAM, HOA Q

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/686,584	Applicant(s) MAEDA ET AL. 	
	Examiner Hoa Q. Pham	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/29/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings filed on 10/17/03 are accepted.

Specification

2. The disclosure is objected to because of the following informalities:

Page 1 of the specification, in the continuation data, the serial number "10/097,478" should be changed to --10/098,478--.

This is an example, applicant is required to correct all of the minor informalities such as typos, grammars, inconsistent use of terms (and/or numerals).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 43-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 43 recites the limitation "wherein light components" in line 11. There is insufficient antecedent basis for this limitation in the claim.

b. Claims 44-46 are dependent from claim 43, therefore inherit the deficiency of the claim 43.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 43-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Chadwick et al (5,085,517) (of record).

Regarding claims 43 and 52, Chadwick discloses a method of inspecting a patterned wafer (abstract and column 5, lines 16-20), comprising steps of: (1) emitting light containing a plurality of wavelengths from a light source (338); (2) illuminating the patterned wafer with the light through a lens (334); (3) detecting with a sensor (344) an image of a pattern on the patterned wafer as illuminated by the light, and outputting from the sensor, a signal concerning a detected image (column 10, line 30, column 12, lines 31-42); and processing the signal outputted from the sensor and obtaining information of defects of the pattern (abstract); and wherein light components having a predetermined wavelength range (400-500 nm) (column 17, line 49) as selected from the light emitted from the light source, are used to illuminate the patterned wafer (see figure 28). Since Chadwick chooses the range of the wavelength within the range of the present invention and also teaches that "the interchangeable filter (915 of figure 6) permitting selection of different filters to optimize the inspection of different materials), thus, it is inherent that the selected wavelengths preventing interference of lights reflected from the wafer.

Regarding claims 44 and 53, the image of the pattern is detected by a time delay integration sensor (abstract and column 12, line 36).

Regarding claim 46, see column 12, lines 15-20 for the wavelength between 500 and 575 nm.

Regarding claims 47 and 58, figure 28 shows that the specimen (330) is illuminated through an objective lens from light source (338); reflected light from the specimen passed through the objective lens is detected with a time delay integration sensor (344); and processing the output signal from the sensor and obtaining information relating to defect of the patterned wafer (figure 1).

Regarding claim 55, Chadwick et al teaches that the light source is a lamp (column 12 line 63 through column 13 line 2).

Regarding claim 60, see column 12, lines 15-20 for the wavelength between 500 and 575 nm.

Regarding claims 50-51, 56-57 and 61-62; as understood, Chadwick et al teaches that the system (10) of figure 1 in which the location of the sensor (38) and the x-y position of the stage (12) are controlled by the processor (25) so that the view image of the surface of the substrate (14) is correctly determined (column 6, lines 15-56). Thus, it is inherent that the output signal from the sensor is processed using a variable defect detection sensitivity, which varies according to a position on the patterned surface.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 45, 48-49, 54 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadwick et al.

Chadwick et al does not explicitly teach that the wafer is illuminated with ultra violet light selected from the light emitted from the light source; however, Chadwick et al teaches that interchangeable color filter (915, figure 6) permitting selection of different filters to optimize the inspection of different materials (column 12, lines 25-27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Chadwick et al a ultra violet light source if a different material to be inspected is required the use of ultra violet light source as mentioned by Chadwick et al.

Response to Arguments

9. Applicant's arguments filed 9/15/05 have been fully considered but they are not persuasive.


a. Chadwick et al teaches the use of a selected wavelength range for detecting the defects of patterned wafer which similar to wavelengths used by the present invention and also teaches that the use of color filter permits selection of different filters to optimize the inspection of different materials; thus, it is inherent that the selected wavelengths would prevent the interference light from the reflected surface.

b. The present claimed invention does not recite that the interference light reflected from the specimen occurred due to manufacturing variation of the thickness of the layers as argued by applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (571) 272-2426. The examiner can normally be reached on 7:30AM to 6 PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hoa Q. Pham
Primary Examiner
Art Unit 2877

HP
March 16, 2006